combusting said propellant and gas wherein said propellant, under heat transfer from the gas stream flowing though the port, forms a liquid layer with surface tension σ and liquid viscosity μ_l values that promote entrainment of droplets from said liquid layer into said gas stream flowing in said port, and said propellant has an a_{onset} value, where a_{onset} is the entrainment onset parameter and is given by:

$$a_{onset} = 1.05 \times 10^{-2}[\rho g^{1.3} / \rho_l^{0.3}][1 / (0.03 C_{Bl})^{0.8}](1 / \mu_g)\ \sigma\ \mu_l^{0.6};$$

where ρg is the average density of the gas stream in the port, ρ_l is the average density of the propellant in the liquid layer, C_{Bl} is the blowing correction coefficient and is given by:

$$C_{Bl} = (2 / 2 + 1.25\ B\ 0.75)$$

where $0 < B < 15$, and μg is the mean gas viscosity of the gas stream in the port, and [the units of] a_{onset} is equal to or less than approximately 0.9 $kg^{1.6} / (m^{2.6}\text{-}sec^{1.6})$.

Cancel Claims ~~15~~ – 18.

19. (Amended) The method of Claim 14 wherein the propellant is comprised of a mixture of one or more paraffin waxes, and carbon black at a concentration in the range of about 0.2 to 2.0 weight percent.

Claim 20 previously canceled.

Cancel claim 21.

Claim 48 previously canceled.

49. (Amended) A method of combusting a propellant within a port having an oxidant flowing through the port, comprising the steps of:

flowing the oxidant through the port; and

combusting said propellant and oxidant where

the propellant, under the heat transfer from the oxidant flowing through the port, forms a liquid layer having a liquid viscosity of less than about 1 milliPa-sec, and a surface tension of less than about 25 milliN/m.